Quality Control Procedure for Dissolved Oxygen

Lab Guide

Task

Check the accuracy of your dissolved oxygen kit. Practice using your dissolved oxygen kit properly.

What You Need

- ❑ *Hydrology Investigation Quality Control Data Sheet*
- ❑ Distilled water
- ❑ 100-mL graduated cylinder
- ❑ 250-mL polyethylene bottle with lid
- ❑ Thermometer
- ❑ Waste bottle with cap for discarding used chemicals
- ❑ Dissolved oxygen test kit
- ❑ Latex gloves
- ❑ Goggles
- ❑ Pen or pencil
- ❑ Clock or watch

What To Do

1. Rinse the 250-mL bottle twice with distilled water.
2. Pour 100 mL of distilled water into the 250-mL bottle.
3. Put the lid on the bottle. Shake the bottle vigorously for 5 minutes. This is the standard you will use to test your kit.
4. Uncap the bottle and take the temperature of the water (see *Water Temperature Protocol Field Guide*). Be sure the tip of the thermometer does not touch the bottom or sides of the bottle.
5. Record the temperature of the distilled water standard on the *Hydrology Investigation Quality Control Data Sheet*.
6. Pour the standard into the sample bottle in your dissolved oxygen kit. Fill the sample bottle completely to the top. Put the lid on the sample bottle. Turn the bottle upside down while it is capped. There should not be any air bubbles.

   Note: It is not necessary to immerse the sample bottle in the water to collect your sample when you are doing the quality control procedure.

7. Put on your gloves and protective goggles.
8. Follow the directions in your dissolved oxygen kit to measure the dissolved oxygen of your standard.
9. Record the amount of dissolved oxygen (mg/L) in your standard on your *Hydrology Investigation Quality Control Data Sheet*.
10. Look up the temperature you recorded earlier on the *Solubility of Oxygen Table*. See Table HY-DO-1.
11. Record the solubility for your water temperature.
12. Find the elevation closest to yours on the *Correction for Elevation/Pressure Table*. See Table HY-DO-2.
13. Record the correction value for your elevation.
14. Multiply the solubility of your standard times the correction value. This is the expected amount of dissolved oxygen in your standard.
15. Compare the amount of dissolved oxygen you measured with the kit to the expected amount for your standard.
16. If the measurement is within ±1mg/L, record the dissolved oxygen value on the *Hydrology Investigation Quality Control Procedure Data Sheet*. If the measurement is not within this range, repeat the entire quality control procedure.
17. If your measurements are still not in range, record the value you got and report to your teacher that the kit is not working properly.
18. Pour all used chemicals into the waste bottle. Clean your kit with distilled water.